User Manual

KANMED BABYWARMER

Art. No BW-50-070/10
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Caution
Please read this manual carefully.
Incorrect use of patient warming equipment
may cause patient injury.

Manufactured by:
KANMED AB
Sweden

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NOTE: This manual is valid for all KANMED Baby Warmer of model KBW50 recognised by the blue silicone rubber edges on the control unit.
This user manual contains important safety information and must be read carefully and shall be saved for future reference.

KANMED Baby Warmer placed in the KANMED Baby Bed

A perfect combination

1 KANMED Baby Warmer - Quick instruction

Always leave the unit switched on so that it is ready for the next baby!

Refer to the Users manual whenever in doubt. Se also the Baby Warmer Video "Handling Instructions"

Filling the water mattress

1. Use the filling tube to fill the water mattress with warm water (about 35^{0}C).
2. Fill to the level mark. Check by standing the water mattress upright. If the bed is to be tilted please read chapter 3 Water Mattress, in the users manual.
3. Add one complete bottle of KANMED anti algae, preferably via the filling tube.
4. There must be no air in the water mattress. Place the water mattress on a flat surface. Grip the open mattress nipple to lift the mattress up a bit and press all air bubbles out. Lower the nipple and close it.

Inserting the Heating Pad and Nest

1. Place the water mattress on a flat surface to insert the heating pad.
2. Turn the water mattress upside down and insert the Heating Pad in the pocket with its printed text towards the water.
3. Turn the water mattress over again.
4. Insert the water mattress with heating pad into the nest pocket. Use the opening in the head end of the nest to assist in fitting the Nest to the water mattress.

Preparing the bed

1. Ensure that the bed has holes in the bottom.
2. Place the Baby Warmer on the cot mattress.
3. Place the Baby Warmer in the KANMED Baby Bed or any other suitable bed.
4. Protect the Nest with a sheet that is soft but not too thick.

Connecting the Control unit

1. Connect the Heating Pad at the back of the Control Unit. Don't over tighten.
2. Connect the power cable at the back of the Control Unit and switch it on.
3. Hang the Control Unit in a safe place where it can be seen.
4. Press the start button on the front panel and observe that it starts at 37^{0}C after a short self test.

Placing the baby

1. Only when the desired temperature is reached, you can place the baby in the nest.
2. Position the lightly dressed baby (diaper, long arm T-shirt, bare legs and a cap on very small ones) on its back in the nest.
3. Adjust the nest size by pulling the string. Hide the cord under the mattress.
4. Cover the baby with suitable cover, such as 1-3 layers of cotton blankets.

Temperature setting

1. All babies are individuals and their temperature must be controlled frequently until you are familiar with the baby's reaction to the water temperature. Overheating is often caused by covering the baby too much.
2. 37^{0}C is a good starting temperature for slightly hypothermic babies and for babies weighing less than 1000g.
3. 36.5^{0}C is the most common temperature for babies weighing more than 1000g
4. As the baby's weight increases, the temperature is primarily controlled by changing the amount of blankets that cover the Baby and secondly by changing the temperature in 0.5^{0}C increments.
5. When the lightly dressed and covered baby is maintaining body temperature with a water temperature of about 35.5 - 36^{0}C, then the baby is most often ready for a standard cot that has no warming.

Maintenance

1. Wash the nest at maximum 90^{0}C. Preferably 60^{0}C. Dry tumble it. KANMED recommends you to change the Baby Nest once a year.
2. Surface disinfect the water mattress and the heating pad
3. Change water every 3 months and add a new bottle of anti algae.
4. See the user's manual for further maintenance instructions and periodical safety checks.

2 Safety Instructions

Please read this manual carefully and you will find the KANMED Baby Warmer to be easy and safe to use.

Intended use

The intended use of the KANMED Baby Warmer is to keep newborn and premature babies normothermic.
KANMED Baby Warmer BW50 is designed for hospital use only.
It must be used according to the instructions in this manual and according to established clinical routines and by qualified personnel.

Explanation of symbols

	Check users manual!		Risk of explosion if used in presence of inflammable gasses
	Protection grade BF, Defibrillator safe		Temperature selection Button
	Key to select temperatures outside 35 – 37^{0}C Called "Temp lock" in text		Alarm button To silence **ΔT** alarm for 10 minutes
	Over temperature alarm	**ΔT**	Indicates water temperature deviation more than +/- 1 ^{o}C from selected value
H_2O	Indicates that the Water Mattress is missing or in the wrong position		Indicates Heating Pad fault
	Certified by SEMKO according to EN 60-601-1, EN 60 601-1-2 , EN 60-601-2-35	**CE_{0413}**	Fullfills MDD 93/42 EEC. EC-Type examination certificate issued by a Notified Body (0413= Intertech SEMKO, Sweden)
	Technical failure in the control unit		Machine washable at maximum 60 ^{0}C
	Can be centrifuged at low speed		Tumble-dry
	No dry cleaning	**I** **O**	On Off
	START / STAND-BY		Battery
	Equi potential connector		Direct current
~	Alternating Current	**KBW 50**	Abbreviation for KANMED Baby Warmer 50W
	IPX 1 Drip proof Control unit BW-50		IPX 7 Water proof Heating Pad
	ETL approved for Canada/US! Note! only labelled on units sold to Canada/USA		

General Safety instructions

- Read this user's manual carefully.
- Please be aware that the acoustic alarm has a sound level of 55dBA (adapted for use in silent environments).
- Check each time the unit is started that it performs the self test as described in section 10. If the self test is not performing as described, leave the unit to a qualified technician.
- Don't fold or bend the Heating Pad sharply.
- Only use Heating Pad BW-50-002 together with control unit BW-50.
- Don't pull the Heating Pad cable or use it for carrying the Heating Pad.
- Use only in hospitals and by qualified personnel.
- Please be aware that use of HF surgical instruments, endocardial catheters or similar devices may interfere with the BW-50 and may require special precautions regarding potential equalization etc.

Safety Instructions for KANMED Baby Warmer 50W

- Always fill the Water Mattress to the required level before the unit is brought into use. Preferably fill with lukewarm water at around 35^0 C.
- Replace the Water Mattress every 3 years.
- Always place the Heating Pad inside the pocket of the Water Mattress before you switch on the unit.
- Make sure that the text side of the Heating Pad is turned towards the Water Mattress.
- Make sure that there are at least 2 holes in the bottom of the bed. If feasible the connection cable to the Heating Pad can be thread through a suitably placed hole.
- Always place the baby with its head towards the closed semicircular part of the KANMED Baby Nest.
- Make sure that the adjusting string is placed outside the Baby Nest to prevent it from interfering with the baby.
- Check the water temperature regularly.
- Check the temperature of the baby regularly.
- Continue to use appropriate monitoring of vital signs.
- ***NOTE: A cold Water Mattress or a Mattress which is cooling down due to the heating being switched off will decrease the temperature of the baby. Likewise, a too warm Water Mattress can give the baby a fever.***
- Check the integrity of the KANMED Baby Nest so that the filling material does not leak out. Replace the nest after one year of use.
- When the unit is delivered it is factory clean but not sterilised. Please clean according to your standard hospital routines.
- Please note that the control unit BW-50 shall be placed horizontally on a flat surface or mounted with the front end up - at a maximum angle of 45 degrees in order to fulfil the IPX1 water protection requirements.

3 General description

The KANMED Baby Warmer consists of 4 major components:

- Control Unit
- KANMED Baby Nest
- Heating Pad
- Water Mattress

Control Unit

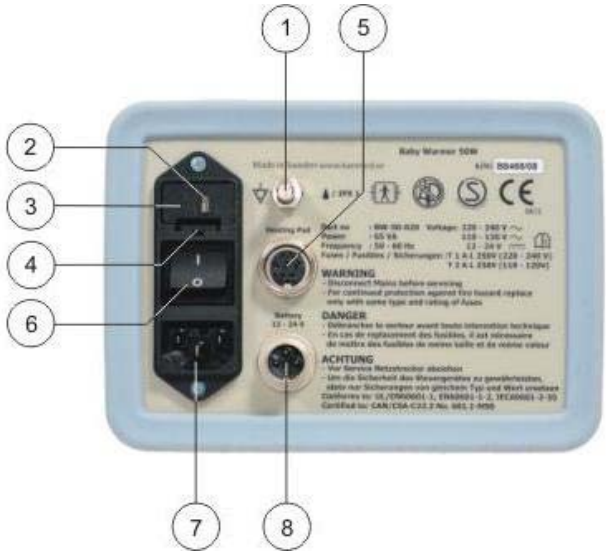
The Control Unit can be connected to all existing mains power supply voltages (observe fuse change) and frequencies or be battery powered from 12 - 24 Volts. See technical section.
The handle is designed so that the control unit can be safely hung on the edge of the bed or on the bed frame.

Front Panel

1. Indicators, not selectable temperatures
2. Button for temperature selection
3. Indicators, selectable temperatures
4. Button for setting temperatures outside the 35 - 37°C range
5. Indicator for Mains power
6. Indicator for battery power
7. Alarm indicators
8. On /Off, Start button
9. Silence alarm button

Rear Panel

1. Earth potential connection stud
2. Mains voltage indicator
3. Fuse holder
4. Locker for fuse holder
5. Heating Pad connector
6. Mains switch
7. Mains socket
8. Connector for external 12/24V battery



The Heating Pad

Avoid bending the Heating Pad.
The design and construction of the Heating Pad has reduced magnetic and electrical fields to normal background levels and thereby making them harmless.
The voltage to the Heating Pad is SELV (24V DC, Safe Extra Low Voltage).
See technical data for information about warming up times.

Explanation of the drawings on the Heating Pad

Please make them available while reading this

1. Heating Pad BW-50-002 may only be connected to Control Unit BW-50.
2. Never place a baby or a child directly on the Heating Pad.
3. The Heating Pad must be inserted in the pocket under the Water Mattress.
4. The correct amount of water is obtained by filling the Water Mattress to the level mark.
5. The Heating Pad must be inserted into the pocket of the Water Mattress with its illustrations facing the Water Mattress. This is best done if the Water Mattress is placed upside down on a flat surface.
6. The Heating Pad and the Water Mattress shall not be exposed to sharp objects.
7. For cleaning and disinfecting see user's manual.
8. The Heating Pad must be stored flat or rolled with a diameter of at least 10 cm (4"). Do not fold

The Water Mattress

When filled to the level mark it contains about 4.5 litres of water. If you plan to tilt the bed then add 2 cm of water. Fill by using the filling tube. Add Anti Algae every 3 months. Water molecules diffuse through the material. This is normal. Therefore the water level should be checked regularly
NOTE: Do not tilt the Water Mattress if the temperature must be higher than 37°C. The very sensitive over temperature circuit can alarm and switch off the warming.
When tilting during warming up, too little water will make the over temperature alarm go off.

Explanation of the drawings on the Water Mattress

9. The level mark on the Water Mattress indicates standard water amount. If tilting is required please add 2 cm more water.
10. Place the Water Mattress in an upright position and fill it with the enclosed Filling Tube. When the desired level has been reached, add Anti Algae carefully through the filling hole or via the Filling Tube. Follow the caution instruction on the Anti Algae package. ***NOTE: Air pressure may build while filling. Interrupt filling and release air if necessary.***
11. Remove air bubbles, Very Important. Place the Water Mattress on a flat surface and lift the filling hole 5 to 10 cm upwards. Press the air bubbles towards the hole repeatedly until all major air bubbles are expelled.
12. Lower the filling hole while pressing the Water Mattress so that no air enters and insert the plug.
13. Turn the Water Mattress upside down and insert the Heating Pad in the pocket.
14. The Water Mattress and the Heating Pad is inserted into the KANMED Baby Nest.

The KANMED Baby Nest

Different types of KANMED Baby Nests are available. Please check with your supplier or on internet www.KANMED.se

The KANMED Baby Nest is intended to prevent the baby from rolling off the water mattress, to facilitate correct positioning and to create a tight and cosy environment around the baby.
By pulling the strings one can adjust the collar from being wide open and flat to become a tight raised wall around the baby. The Baby Nest consists of a bag into which the Water Mattress and Heating Pad is inserted.
Note: Check the Baby Nest regularly for damages. To reduce the risk of a nest splitting during washing we recommend that the nest is used for only one year.

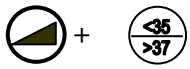
4 Description of functions

Start and self test

Every time the Control Unit is switched on it performs a self test of all functions and the internal safety circuits. (See chapter 10 for a detailed description of the self test). If the Control Unit does not detect any faults, the warming will start automatically at a factory pre-set temperature of 37 °C.
That the Unit is warming is indicated by a temperature lamp being lit. (Wait about 10 seconds after start)
If the unit do not self test exactly as described in this manual- then you must not use it!
Warming can only start if no faults are detected.

Temperature indication and selection

The actual water temperature is indicated by a blinking lamp and the selected by a constantly lit lamp.
That the selected temperature is reached is indicated by a constantly lit temperature lamp.
The temperature lamps have different colours as described below.

Lamp Colour	Temperature range	Comment	Symbol(s)
Green	35 - 37 °C	Selected by pressing the temperature button	
Yellow	34, 34.5, 37.5 and 38 °C	Can only be selected if the temp lock key is pressed and hold in at the same time	
Red	20- 30 and 39-42 °C	Only for indication	

Alarms

Description and checks of the function of alarms is found in the technical section.
Stop the acoustic alarm by pressing the alarm button or switch the unit off by pressing the Start/ Stand By button. Only **ΔT** can be cancelled for 10 minutes by pressing the alarm button.
Try to rectify the cause for an alarm (see section trouble shooting) and switch on the unit again.
If the alarm still goes on - contact a qualified technician.

5 Getting ready for the baby

Please follow the Quick Start instruction on page 3.
Ensure that all parts are available and in good condition.
See also the video "Handling Instructions"
Always place the KANMED Baby Warmer on the ordinary mattress of a baby cot or any other surface that is heat insulating.

6 Daily use and practical hints

Always leave the unit switched on, even in the storage room, so that the water mattress is warm and ready.

Delivery Wards

- Use it for children that for different reasons have lost heat after the delivery.
- Low birth weight or premature babies that do not need all the resources of an intensive care department can thanks to the KANMED Baby Warmer be kept with the mother in the ward.
- In rooms with low temperatures.

Transport of babies inside the hospital
If the child is normally covered and in a standard cot, the water temperature will only drop about 1.5^0 C per hour when the power is disconnected.

When transporting in an ambulance (ground or air)
The KANMED Baby Warmer can be powered from a 12 - 24 Volt battery. During transport it will keep the baby warm and provide a soft chock absorbing support.
NOTE: When powering with 12V battery the warming capacity is reduced, see technical section. Note that local restrictions and rules apply for transport of patients.

In Maternity Wards it allows more children to stay with their mother and will save costs.
"In between" babies, that are babies between 2000 and 2500 gram, born around pregnancy week 35 - 38, are often not capable of maintaining a normal body temperature during their first days after birth. KANMED Baby Warmer keeps them at normal temperature and allows them to stay with their mothers.
Uneasy, stressed and screaming babies can often find a soothing and relaxing environment on the warm water mattress thereby relieving the staff or mother.

Neonatal intensive care departments
KANMED Baby Warmer can be used to reduce the time the baby needs to spend in an incubator.
KANMED Baby Warmer can replace the incubator when the baby is mostly in need of the warming.
Vital signs monitoring can easily be continued in the KANMED Baby Warmer and the KANMED Baby Bed
The KANMED Baby Warmer can also be used inside an incubator to help obtain correct body temperature, especially in older single wall units. This has not been tested by KANMED and is the sole responsibility of the hospital.
NOTE: The function and temperature regulation of the KANMED Baby Warmer is not influenced by the incubator.
Try it for children in need of a soft warm support, for instance children suffering from hydrocephalus, fractures or headaches after delivery with a forceps or a suction device, colicky pains, etc.

NIDCAP, Developmental Care and Kangaroo care
In these treatment forms the sleeping and rest as well as positioning of the baby plays an essential role. The warm soft water mattress resembles the warmth of a mothers skin making the KANMED Baby Warmer the ideal tool to ensure quality sleep. Kangaroo care is encouraged in open systems.

Photo therapy
KANMED Baby Warmer is very suited for Photo therapy by using an overhead lamp and especially for new blue lights that do not give any heat.

7 Cleaning and maintenance

Cleaning and disinfecting

GENERAL: The user of KANMED equipment shall not use any methods for cleaning and decontamination other than those recommended by KANMED without first checking with KANMED that these methods do not harm the equipment. KANMED equipment withstands all known cleaning and disinfection liquids.
Do not autoclave any parts. Protect yourself according to hospital routines.

Control Unit

- Remove the mains cable and the Heating Pad.
- Wipe off with a cloth moistened with cleaning and disinfectant liquid that you normally use for technical equipment.
- Always clean between patients or per your own routines.

Water Mattress

- Add Anti Algae from day one!
- Clean with water and wipe off with a cloth moistened with cleaning and disinfectant liquid that you normally use for plastics.
- If HIV or Hepatitis is suspected cleaning can be done with much stronger agents such as ethyl alcohol (50 %), formaldehyde or chloramines. Continued next page……..

- Note: Flushing the inside using pure alcohol stronger than 50% may remove the printed instructions on the mattress.
- Always clean between patients or per your own routines.

Heating Pad

- Use same method as for Water Mattress.
- Avoid fluids in the connector.
- Always clean between patients or per your own routines.

KANMED Baby Nest.

- May be machine washed at temperatures up to 60^{O}C.
- Centrifuge at medium to low speed.
- Always dry tumble.
- If needed, the nest can withstand 90 degree washing but this may shorten the lifetime.
- Check for damages after washing.
- Always wash between patients or per your own routines.

Periodical exchanges

Water in Water Mattress

- Every 3 months
- Do not forget to add a whole bottle of KANMED anti algae

The Water Mattress

The Water Mattress should be changed at least every third year to avoid leakages

KANMED Baby Nest

The Baby Nest is a consumable. The KANMED Baby Nest containing filling material must be changed as soon as it shows signs of damage or wear, at least after one year of use.

Periodical Checks

Recommended checks	To be done by	Interval
Water Mattress and water level, Heating Pad, Baby Nest - are they clean and undamaged ?	The user	Every time the bed is made
Cables and connectors - are they clean and undamaged ?	The user	At each start
Self test at start	The user	At each start
Check of safety systems as per chapter 10	Technician or user	Every year
Electronic safety test	Technician	Every year
Temperature check as below	Technician or user	Every year or when in doubt
Replacement of the internal 1.5V battery (LR6/AA type)	Technician	Every year

Temperature Check

To perform the temperature check a precision thermometer preferably with a skin sensor is needed.

- Make up the bed as for normal use and place the skin probe in the centre ***on top of*** the Water Mattress. Cover the probe with an insulating material.
- Start the unit and wait until the Control Unit indicates that set temperature is reached.
- Check that the precision thermometer and the Control Unit displays the same temperature, allowed difference +/- 0.5^{O}C.

8 Alarm functions and indication

In case of an alarm, the associated red lamp will be lit and the beeper will sound intermittently. Only the ΔT alarm can be silenced for 10 minutes by pressing the alarm button. All other alarms require some action.
In most alarm conditions the warming will stop. This can be seen by the fact that no temperature lamp is lit. In such case the only way to silence the alarm is to press the Start/Standby knob.

Alarm	Symbol	Reason	Warming
Over-temperature		Water temperature > 39.5 °C	Will stop
Temperature deviation	**ΔT**	The water-temperature deviates more than +/- 1°C	Continues for 10 min.
NOTE: This alarm is not activated until set temperature is reached or 4 hours after start - whichever happens first. The alarm can be silenced for 10 min. but if after that the temperature still differs more than +/- 1 °C the warming will stop.			
No Water Mattress	**H_2O**	The heating pad is not inserted into the water mattress or too little water	Stops
Pad fault		Heating pad is faulty or not connected	Will not start or stops
Control Unit fault		Technical failure	Will not start or stops
Supply voltage failure		Supply voltage (mains or battery)has disappeared or been switched off without pressing Start/Standby first	Stops
Internal battery	**ΔT+H2O+**	Internal battery is weak or missing at start up. Press and hold the Alarm button when restarting. Replace battery as soon as possible	Will not start

9 Trouble shooting

Symptom	Probable cause	Remedy
No lamp lit	No supply voltage connected	Connect supply cable
	Power switch on rear panel in "OFF" position.	Check On/Off switch
	Control Unit fuses blown	Check fuses/contact technician
lamp is blinking and the acoustic alarm is on	Supply voltage has disappeared during warming	Check supply voltage and that the unit automatically starts when supply voltage is restored
lamp is blinking	The water temperature is > 39,5°C.	Check if some external heat source has influenced the unit.
	Error in the Control Unit or the Heating Pad	Let a technician check the unit.
	Too little water during warming up with tilt	Add 2 cm water above the level line.
△T lamp is lit	Water temperature deviates more that +/- 1°C from selected value.	Check for any external influences. Has the unit been moved to another bed without switching it off?
	The selected water temperature has not been reached after 4 hours	Check the bedding. Is the water mattress placed on an insulating surface? Restart again.

H_2O lamps is lit	The Heating Pad is not inserted in the Water mattress or there is no water in the mattress,	Correct the position of the Heating Pad and/or add water in the Water Mattress.
lamp is lit	The Heating Pad is not connected,	Check pad connection
	Heating Pad is faulty	Try another Heating Pad
lamp is lit	Technical fault in Control Unit	Leave the unit to a technician
	Element in the Heating Pad might be faulty	Check with another Heating Pad or leave it to a technician
ΔT, H_2O and are blinking	Internal 1,5 V battery low or missing and must be replaced as soon as possible	Battery has to be replaced by a technician Bypass by making a new start but keep the Alarm button pressed continuously until the self test has ended.

10 Safety systems available

Test instructions

Self test at start
Connect the control unit to mains supply and Heating Pad. Switch on the mains switch at the rear panel and check that the mains indicator lamp is lit.
Press Start/Standby and check that the following happens in the order described below.

1. All alarm lamps are lit and the beeper sounds for about 0.5 sec.
2. All lamps starting from Control unit lamp and ending with 42 °C are lit in consecutive order.
3. One of the temperature lamps blinks 5 times indicating PROM version
4. Temperature lamp 37 is lit.
5. If the self test is performed as described above it is ready for use.

Over temperature alarm

1. Start the unit and observe self test is OK
2. Fill a bucket (Height about 30 cm and min. diameter 20 cm) with warm water (38 °C)
3. Roll the Heating Pad loosely and insert it fully in the water.
4. Slowly fill with warm water until the temperature reaches 39.5 °C.
   NOTE: It will take a few minutes for the sensor in the Heating Pad to reach 39.5 °C.
5. Check that the over-temperature lamp is lit and that the beeper sounds at 39.5 °C ± 1 °C.
   NOTE: During this test other alarm lamps may be lit and the beeper may sound but this does not influence the test.

Temperature deviation alarm ΔT
This alarm can only be activated after the selected temperature has been reached.
There are 2 ways of performing this test.

Testing at normal use and when the set temperature has been reached.

1. Note actual temperature
2. Pull out the Heating Pad from the pocket of the mattress so that temperature sensor T1 is cooled.
3. Check that the alarm lamp is lit when the temperature has dropped 1 °C

Testing with a water container

1. Fill a water container with 36 °C water and insert the Heating Pad
2. Start the warming and wait until the temperature lamps indicates that the set value has been reached.
3. Fill slowly with hot or cold water and note that the **ΔT** lamp is lit when the temperature has changed more than 1 °C

Missing Water Mattress alarm H_2O

1. Start the unit and observe an "OK" self test.
2. Place the Heating Pad without the Water Mattress on a flat surface.
3. Wait 5 to 7 minutes and check that the H2O alarm lamp is lit.

NOTE: The Heating pad must be at room temperature before starting this test.

Heating Pad fault alarm

For this test the heating pad is not connected to the control unit.
Start the warming and check that the Heating Pad symbol and the Pad lamp are lit after about 3 sec. and that the beeper sounds.

Supply voltage failure alarm

For this test the unit must be assembled completely with Water Mattress and Heating Pad

1. Start the warming
2. After about one minute, select a temperature different from 37 °C and make a note of it.
3. Wait about 2 minutes and then disconnect the supply voltage by using the mains switch or pulling out the mains plug.
4. Check that the temperature lamp is off and that the Control unit lamp starts to blink and that the acoustic alarm beeps intermittently for at least 10 minutes
5. Switch on supply voltage again and check that the self test is performed OK and that the warming starts at the value selected before supply voltage interruption.

Internal 1.5 V battery test

This test may only be done by a qualified technician. During this test the heating pad must be connected and the internal 1,5 Volt battery removed from its holder by opening the Control Unit.

1. Press start and check that the red lamps for, **ΔT**, **H_2O** and blinks. Press Start/standby
2. Make a new start but keep the alarm button pressed continuously until the self test has ended.
3. Check that the warming starts i.e. that the missing or "dead" battery can be bypassed.

11 Accessories, Spare parts and technical documentation

Your local supplier has all information about available spare parts and accessories or check www.KANMED.se
User Manuals in many languages can be downloaded from www.KANMED.se
KANMED or your local distributor will provide a spare part price list as well as a service manual that contains all information necessary to perform maintenance, and simpler repairs.

Article number	Description	Quantity
BW-50-002	Heating Pad BW50	1
BW-50-003	Water Mattress BW50	1
BW-50-025	KANMED Baby Nest	1(5 pack available)
BW-50-005	Filling Tube BW50	1
BW-50-029	Anti algae	Box of 20
BW-50-007	Battery Cable for Control Unit BW50	1
Spare parts		
700-0001	Fuse T 1A (F1,F2, 220 -240V)	Pack of 10
700-0079	Fuse T 2A (F1,F2, 110 -115 V)	Pack of 10
700-0324	Fuse T 3,15A (F3 + F4)	Pack of 10
699-1171	Mains Cord 230V	1

12 Technical data

Heating Pad	
Voltage	24 Volt AC from Control Unit BW-50 when powering with mains power or 24 V DC when powering from 24V battery source
Power consumption	50 Watt ,12 Watt when powering the Control Unit from a 12 Volt battery.
Dimensions and Weight	Length 580 mm, With 250 mm, Thickness 2 mm, Weight 0.5 Kg
Length of connection cable	1,2 m
Material cover	PVC
Watertight	Yes, except connector
Conductivity - surface	Not electrically conductive
Radiation	No measurable magnetic and electrical fields
Control Unit	
Mains power	220 -240 V AC or 110 - 120 V AC
Battery power	12 - 24 V DC (Limited warming capacity at 12 V DC)
Frequency	50 - 60 Hz
Power consumption	Max 65VA
Temperatures available	34 ^{O}C - 38 ^{O}C in steps of 0.5 ^{O}C
Accuracy	±0.5 ^{O}C
Resolution	0.5 ^{O}C
Auditory Alarm	55 dBA Sound level
Indication of temperatures and alarms	LED 35 -37 ^{O}C are green, 34, 34.5, 37.5 and 38 ^{O}C are yellow < 34, >38 ^{O}C are red alarms
Over temperature alarm	At a water temperature of 39.5 ± 1 ^{O}C
Dimensions and Weight	Length 210 mm, With 165 mm, Height 120 mm, Weight about 3 kg
Fuses F1, F2	220-240 V AC: T 1A L250V, 110-120 V AC: T 2A L250V
Mode of use	Designed for continuous use
Water protection	Drip proof when installed according to section 2
Internal Battery	Alkaline, 1.5V size LR6(AA) (Only for power failure alarm)
Water Mattress	
Dimensions and Weight	Length 600 mm, With 270 mm, Height 30 mm, Other sizes might be available. Please contact your local supplier. Weight about 0.5 kg
Material	PVC
Anti Algae recommended	KANMED Bottle 119 ml fluid Poly [Oxyethylene (dimethylimino) ethylene (dimethyliminio) ethelyenedichloride] 10% Inert ingredients 90%
KANMED Baby Nest	
Dimensions	Length 650 mm, Width 450 mm Height 50 mm flattened
Material	Cover: High quality cotton and polyester Filling of collar: Polyester fibre. Always tumble dry
Washing	Recommended temperature 60^{0}C, Can tolerate 90^{0}C but may shorten lifetime
Other sizes and materials are available. Please contact your local supplier.	
Warming Capacity (Fill with warm water to reduce the warming up time)	
Normal conditions	About 4-5^{0}C per hour. (Room temperature about 22^{0}C and filled with 4,5 litres of water and placed on the mattress of a baby bed and covered with the nest and a sheet. Connection to mains or a 24V battery)
12 V Battery	About 1.5^{0}C per hour up to set temperature minus 6^{0}C About 0.5^{0}C per hour up to set temperature minus 2^{0}C About 0.3^{0}C per hour up to set temperature
Twin Mattress	If not filled with warm water the ΔT alarm will be activated after 4 hours. Restart and the temperature will be reached. A "naked" twin mattress will not reach set temperature due to excessive heat loss

Safety Standards	
Standards	EN 60 601-1 , EN 60 601-1-2, EN 60 601-2-35
Protection type	BF, Defibrillator safe Class I
CE marking	Fulfils MDD 93/42 EEC. MDD class IIB. (EC 0413= Intertech SEMKO, Sweden)
Environmental Conditions / Storage	
Surrounding temperatures	In use: +10 to + 34 °C
Storing	-40 to + 70 °C
Humidity	10 - 100%, condensing
EMC Guidelines	
	The BW-50 Baby Warming system should not be used adjacent to, or stacked with other equipment. If adjacent or stacked use is necessary, the BW-50 Baby warming system should be observed to verify normal operation in the configuration in which it is used. Additional EMC information can be found in the service manual and on www.KANMED.se
Connection to battery	
	If the Control Unit is to be connected to a battery (12-24 V, from a vehicle etc.) use the Battery Cable BW-50-007. Connect the battery cable to the Battery inlet and secure it with the locker ring. Connect the other end (fitted with cigarette lighter plug) to the vehicles cigarette lighter socket or similar outlet. If the lighter plug has to be changed to another model or if the power is taken from batteries directly then note that the white cable is **+** and the brown is **-** (minus)
Modifications	
	Any modifications on the control unit, heating pad and water mattress will void KANMED's responsibilities totally and are not allowed without the written consent of KANMED.

13 Warranty

KANMED warrants the purchaser that the Control Unit BW-50, Heating Pad BW-50-002, are free from defects in material and workmanship for a period of 12 month from the date of delivery.
The KANMED Baby Nest and associated parts are warranted to be free of defects at the time of delivery.
The sole obligation of KANMED with respect to any such defect is limited to the repair with new or re-manufactured parts or, at the discretion of KANMED, replacement of the equipment or refunding of the purchase price.
This warranty shall not apply if the product has been modified, adjusted or repaired other than by KANMED or by organisations authorised by KANMED or modified, adjusted or repaired not in accordance with written instructions provided by KANMED. Neither shall the warranty apply if the equipment has been subject to misuse, negligence or accident.
These warranties are made on the condition that prompt notification of a defect is given to KANMED or its authorised dealers within the warranty period.
KANMED shall have the sole right to determine whether a defect exists.
KANMED shall not in any case be liable for special or consequential damages arising from the breach of warranty, breach of contract, negligence or any other legal theory.

14 Disposal

When the KANMED Baby Warmer have reached end of life, it should be recycled in accordance with the EU 2002/96/EC (WEEE) directive if applicable.

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